

# An Integrated Human System Interaction (HSI) Framework for Human-Agent Team Collaboration, Phase I

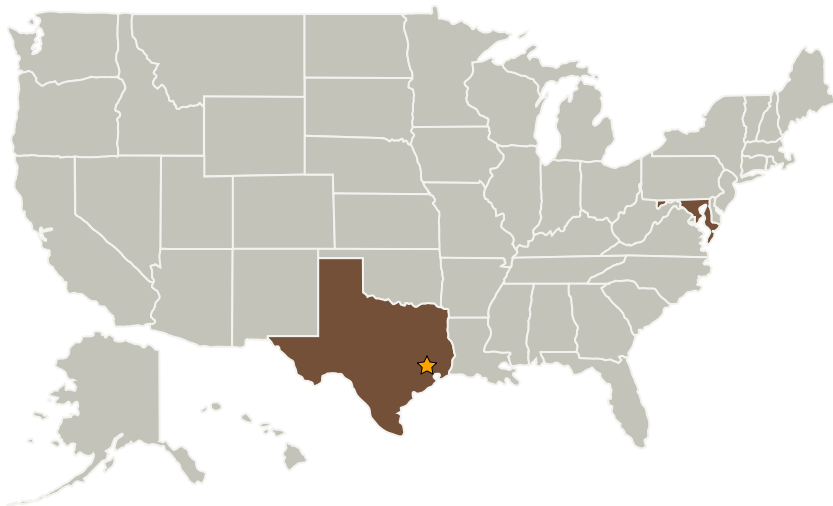
Completed Technology Project (2007 - 2007)



## Project Introduction

The NASA commitment to a human presence in space exploration results in the interaction of humans with challenging environments in space, on lunar, and on planetary bodies. Meeting these challenges requires the development of technologies that will support human system interaction by integrating monitoring, feedback and situational awareness across all types of mission parameters and observables. A successful human system interaction (HSI) system could extend based on existing agent frameworks and software architectures in which NASA is interested. Our proposed approach enables the design of embedded protocols for human-agent interactions to support crew health, safety, and cognitive load modeling in the context of supporting plan execution as well as overall mission goals and activities. Particularly, our proposed HSI framework consists of various types of agents (including sensing and situational awareness abilities, etc.), a suite of HSI protocols for delegation, adjustable autonomy, situational awareness, HSI and mission-oriented coordination, and the integration of the proposed framework with existing systems to assist mission task operations by providing previously hard to observe, yet vital dynamic information, e.g. human health conditions. Our innovation is an agent-based integrated framework for modeling, simulation and implementation of context and mission aware human-system interaction protocols and interfaces.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Intelligent Automation, Inc.	Supporting Organization	Industry	Rockville, Maryland

## Primary U.S. Work Locations

Maryland	Texas
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX06 Human Health, Life Support, and Habitation Systems
  - └ TX06.6 Human Systems Integration
    - └ TX06.6.4 Operations Effectiveness